

Having described the invention, what is claimed is:

- 1 1. A thrust bearing with needle rollers, the thrust bearing comprising:
 - 2 a first race component made of a first material and including a flat, circular raceway
 - 3 portion, defined about an axis, and an axially extending lip portion;
 - 4 a plurality of needle rollers arranged radially with respect to the axis for rolling
 - 5 contact with the flat raceway portion of the first race component;
 - 6 a bearing cage retaining the needle rollers and engageable with the lip portion of the
 - 7 first component for piloting of the bearing cage; and
 - 8 a second race component made of a second material and including a flat portion in
 - 9 contact with the raceway portion of the first race component and, also, including a lip
 - 10 portion extending axially and radially from the flat portion and beyond the lip portion of the
 - 11 first race component such that the second race component is engageable by the bearing cage
 - 12 to hold the first race component, the second race component and the bearing cage together
 - 13 as an assembly.
- 1 2. A thrust bearing according to claim 1, wherein the axially extending lip portion
- 2 of the first race component is radially outward of the raceway portion of the first race
- 3 component.
- 1 3. A thrust bearing according to claim 1, wherein the axially extending lip portion
- 2 of the first race component is radially inward of the raceway portion of the first race
- 3 component.

1 4. A thrust bearing according to claim 1, further comprising an additional thrust
2 race including a circular raceway portion for rolling contact with the rollers, the rollers being
3 positioned between the circular raceway portions of the first race component and the
4 additional thrust race.

1 5. A thrust bearing according to claim 4, wherein the additional thrust race
2 comprises two components made of different materials.

1 6. A thrust bearing according to claim 4, wherein the additional thrust race is
2 engageable by the bearing cage to retain the additional thrust race and the bearing cage
3 together as an assembly.

1 7. A thrust bearing according to claim 1, wherein the first race component is made
2 of bearing quality steel and the second race component is made of a more ductile material.

1 8. A thrust bearing according to claim 1, wherein the first race component is made
2 of bearing quality steel and the second race component is made of a more easily welded
3 material.

1 9. A thrust bearing according to claim 1, wherein the first race component is made
2 of a high carbon steel and the second race component is made of a lower carbon steel.

1 10. A thrust bearing according to claim 1, wherein the second race component is
2 staked, at a plurality of locations along a circumference of the lip portion of the second race
3 component, over the lip of the first race component, such that the first race component, the
4 second race component and the bearing cage are retained together as an assembly.

1 11. A thrust bearing according to claim 1, wherein the second race component
2 includes an extension portion extending axially from the flat portion of the second race
3 component and in a direction away from the rollers.

1 12. A thrust bearing according to claim 1, wherein the first and second race
2 components are formed from sheet metal, the first and second materials being different from
3 each other.

1 13. A method of making a thrust bearing, the method comprising:
2 cutting a first component blank from sheet metal;
3 providing a second component blank made from sheet metal of a different material;
4 positioning the first component blank against the second component blank;
5 bending the first component blank and the second component blank together such
6 that the first component blank forms a first race component including a flat, circular raceway
7 portion, defined about an axis, and an axially extending lip portion, and such that the second
8 component blank forms a second race component including a flat portion in contact with the
9 raceway portion of the first race component and a lip portion extending axially from the flat
10 portion and beyond the lip portion of the first race component.

1 14. A method of making a thrust bearing according to claim 13, further comprising
2 positioning a bearing cage with needle rollers against the raceway portion of the first
3 component and forming of the axially extending lip portion of the second race component
4 such that the lip portion is engageable by the bearing cage to retain the first race component,
5 the second race component and the bearing cage together as an assembly.

1 15. A method of making a thrust bearing according to claim 13, further comprising
2 forming an extension portion of the second race component extending axially from the flat
3 portion of the second race component and in a direction away from the rollers.

1 16. A method of making a thrust bearing according to claim 13, further comprising
2 bonding the first component blank to the second component blank.

1 17. A method of making a thrust bearing, the method comprising:
2 cutting a first component blank from sheet metal;
3 providing a second component blank made from sheet metal of a different material;
4 positioning the first component blank against the second component blank;
5 bending the first and second component blanks separately, and subsequently
6 assembling the first and second component blanks together, such that the first component
7 blank forms a first race component including a flat, circular raceway portion, defined about
8 an axis, and an axially extending lip portion, and such that the second component blank
9 forms a second race component including a flat portion in contact with the raceway portion

10 of the first race component and a lip portion extending axially from the flat portion and
11 beyond the lip portion of the first race component.

- 1 18. A method of making a thrust bearing according to claim 17, further comprising
- 2 positioning a bearing cage with needle rollers against the raceway portion of the first
- 3 component and forming of the axially extending lip portion of the second race component
- 4 such that the lip portion is engageable by the bearing cage to retain the first race component,
- 5 the second race component and the bearing cage together as an assembly.

1 19. A method of making a thrust bearing according to claim 17, further comprising
2 forming an extension portion of the second race component extending axially from the flat
3 portion of the second race component and in a direction away from the rollers.

1 20. A method of making a thrust bearing according to claim 17, further comprising
2 bonding the first component blank to the second component blank.